In the Specification:

Please replace the paragraph on page 1, beginning at line 3 with the following:

This application claims priority from U.S. Provisional patent application No. 60/414,000, filed Sep. 26, 2002, and~~. This application is also related to~~ application Ser. No. 09/884,766 filed Jun. 19, 2001, now U.S. Pat. No. 6,490,470, a divisional of which was filed November 15, 2002, as application Ser. No. 10/295,468, which issued as U.S. Patent No. 6,633,774 on October 15, 2003. This application is related to application~~, and~~ Ser. No. 09/243,004 filed Feb. 2, 1999, entitled THERMOACOUSTIC COMPUTED TOMOGRAPHY SCANNER, now U.S. Pat. No. 6,216,025, which is a divisional application of Ser. No. 09/076,385 filed May 12, 1998, now U.S. Pat. No. 6,104,942, and application Ser. No. 09/076,968 filed May 13, 1998, now U.S. Pat. No. 6,102,857, which is a divisional of Patent Cooperation Treaty application designating the Ser. No. 97/17832, filed Oct. 1, 1997, which is a continuation of application Ser. No. 08/719,736, filed Oct. 4, 1996, now U.S. Pat. No. 5,713,356, issued Feb. 3, 1998, all of the foregoing being filed in the name of the same inventor as the present application and assigned to the same assignee as the present application, and all of the foregoing hereby incorporated by reference into this application.

Under the heading entitled, Brief Description of the Drawings, page 4, after line 27,. insert this paragraph:

FIG. 9 is an illustration of the electronic circuitry used in a combination TACT and ultrasound imaging system using the scanner of FIG. 2.

Under the heading entitled, Detailed Description of Specific Embodiments, page 11, replace the paragraph at lines 4-23 with three paragraphs, as set forth below:

In cases where dye markers are used, the laser wavelength would be chosen to correspond to the wavelength where peak absorption of the dye occurs. For example, a laser that operated at 548 nm would be used with the Cy3 dye, whose absorption properties are shown in FIG. 8. Additionally, two TCT images may be formed using two different wavelengths, one near the dye's peak absorption, one slightly higher where absorption by the dye is low (550 and 600 nm for the Cy3 dye). Since these two wavelengths are close together, the absorption due to endogenous tissue will not vary much between the two images. However, only the image taken at 550 nm will display absorption due to the Cy3 dye. Subtracting the two images on a point by point basis, would isolate the dye absorption from that of endogenous chromophores, producing a map of Cy3 dye distribution in the tissue. This method can be extended and applied to multiple dyes simultaneously by using additional wavelengths.

Referring now to FIG. 9, the use of detector array 44 in TACT imaging as well as ultrasonic imaging can be explained. A further advantage of detector array 44 is that it provides an array of adjacent acoustic sensors that may also be used in a conventional ultrasound process

for ultrasound imaging of the breast tissue in conjunction with or in addition to thermoacoustic imaging. Specifically, the acoustic sensors in detector array 44 are coupled to a TACT receiver 46 and to a TACT processing system 48 for producing TACT images using acoustic signals detected by the detector array 44. Details of this process are described in the above-referenced U.S. Pat. No. 5,713,356, and are not repeated here. The resulting TACT-generated image may be displayed on a display for diagnostic purposes. Simultaneously, or as a separate imaging modality, the sensors on array 44 may be used for conventional ultrasound imaging of the subject tissue. Specifically, for this application, an ultrasound beam steering delay circuit 54 is controlled by an ultrasound imaging system 52 to produce a narrow sweeping beam of ultrasound directed from the piezoelectric elements of detector array 44 into the tissue of the breast. Echoes produced within the breast are then received by the acoustic sensors in detector array 44 and delivered to an ultrasound receiver 56, and then relayed to the ultrasound imaging system 52 using conventional ultrasound imaging techniques. As a result, an ultrasound image of the tissue may be created and presented on display 50 overlaid with or as a substitute for comparison to the TACT-generated image produced by the TACT system 48. Combined ultrasound and TACT imaging created in this manner may serve diagnostic purposes that cannot be realized by either modality alone, by permitting discrimination of tissue structures that are more readily recognized with each modality, and permitting direct comparison of images produced by each modality by a clinician operating the scanning system and viewing display 50.

While the present invention has been illustrated by a description of various embodiments and while these embodiments have been described in considerable detail, it is not

the intention of the applicants to restrict or in any way limit the scope of the appended claims to such detail. Additional advantages and modifications will readily appear to those skilled in the art. The invention in its broader aspects is therefore not limited to the specific details, representative apparatus and method, and illustrative example shown and described. Accordingly, departures may be made from such details without departing from the spirit or scope of applicant's general inventive concept.